

LAND APPLICATION OF BIOSOLIDS
FRED MASSIE

LO07 (FIELDS 1 - 5, 7 - 9, 11, 19 - 22)
LOUISA COUNTY, VIRGINIA
JULY 2011





June 1, 2012

Mr. Ed Stuart
Dept of Environmental Quality
Northern Virginia Regional Office
13901 Crown Court
Woodbridge, VA 22193

Dear Mr. Stuart:

Transmitted herein for your consideration is land application site for Fred Massie (designated as LO 07, fields 1-5, 7-9, 11, 19-22), located in Louisa County, Virginia. This submission contains strictly site specific information. Please refer to the operations and maintenance manual submitted under separate cover for all non-site specific information.

Do not hesitate to contact me at (804) 443-2170 should you have any questions or require additional information.

Sincerely,

A handwritten signature in blue ink that reads "Kelly M. Love".

Kelly M. Love
Technical Services Director

KML/cmw



FIELD SUMMARY SHEET

Fred Massie

LO07

SYNAGRO FIELD #	GROSS ACRES	NET ACRES	FSA TRACT #	FSA FIELD #	TOPO QUAD	OWNER
07-01	38.9	34.3			Louisa	Massie, Susan Ann Estate
07-02	13.1	13.0			Louisa	Massie, Susan Ann ET ALS
07-03	36.7	28.4			Louisa	Massie, Susan Ann ET ALS
07-04	31.8	31.8			Louisa	Massie, Susan Ann ET ALS
07-05	33.0	30.0			Louisa	Massie, Susan Ann ET ALS
07-07	17.4	14.0			Louisa	Massie, Susan Ann ET ALS
07-08	12.7	10.4			Louisa	Massie, Susan Ann ET ALS
07-09	16.2	16.2			Louisa	Massie, Susan Ann ET ALS
07-11	68.1	68.1			Louisa	Massie, Susan Ann ET ALS
07-19	7.6	7.6			Mineral	Massie, Fred ET ALS
07-20	21.6	21.5			Mineral	Massie, Fred ET ALS
07-21	24.4	24.3			Mineral	Massie, Fred ET ALS
07-22	27.0	23.2			Buckner	Massie, Fred ET ALS
TOTALS:	348.5	322.8				

Appendix I

VIRGINIA POLLUTION ABATEMENT APPLICATION
FORM D: MUNICIPAL EFFLUENT AND BIOSOLIDS

PART D-VI: LAND APPLICATION AGREEMENT - BIOSOLIDS AND INDUSTRIAL RESIDUALS

A. This biosolids/industrial residuals land application agreement is made on 6/27/12 between FRED MESSIE referred to here as "Landowner", and Synagro referred to here as the "Permittee". This agreement remains in effect until it is terminated in writing by either party or until ownership of all parcels changes. If ownership of individual parcels identified in this agreement changes, those parcels for which ownership has changed will no longer be authorized to receive biosolids or industrial residuals under this agreement.

Landowner:

I am the registered owner of real property known as LO-7, located in Louisa, Virginia, which includes the agricultural sites identified below in Table 1 and identified on the tax map(s) attached as Exhibit A.

Table 1: Parcels authorized to receive biosolids, water treatment residuals or other industrial sludges			
Tax Parcel ID	Tax Parcel ID	Tax Parcel ID	Tax Parcel ID
<u>See Tax</u>	<u>Id. map</u>	<u>and sheet in</u>	<u>site Book</u>
<u>14-33</u>			
<u>14-35</u>			

☐ Additional parcels containing Land Application Sites are identified on Supplement A (check if applicable)

Check one:

- ☒ I am the sole owner of the properties identified herein.
☒ I am one of multiple owners of the properties identified herein.

In the event that I, the landowner, sell or transfer all or part of the property to which biosolids have been applied within 38 months of the latest date of biosolids application, I shall:

1. Notify the purchaser of the applicable public access and crop management restrictions no later than the closing date; and
2. Notify the permit holder of the sale within two weeks following closing.

I have no other agreements for land application on the fields identified herein. I will notify the permittee immediately if conditions change such that the fields are no longer available to the permittee for application or any part of this agreement becomes invalid.

I hereby grant permission to the Permittee to land apply residuals as specified below, on the agricultural sites identified above and in Exhibit A. I also grant permission for DEQ staff to conduct inspections on my land identified above, before, during or after land application of permitted residuals for the purpose of determining compliance.

Class B biosolids Water treatment residuals Food processing waste Other industrial sludges
☒ Yes ☐ No ☒ Yes ☐ No ☒ Yes ☐ No

FRED MESSIE

Landowner - Printed Name

Fred Messie

Signature

4724 ELLISVILLE DR

Mailing Address

LOUISA, VA 23063

Permittee:

Synagro the permittee, agrees to apply biosolids and/or industrial residuals on the landowner's land in the manner authorized by the VPA Permit Regulation and in amounts not to exceed the rates identified in the nutrient management plan prepared for each land application field by a person certified in accordance with §10.1-104.2 of the Code of Virginia. Permittee will provide a copy of the NMP to the landowner within 30 days after land application has commenced. If the plan requires modification to reflect the actual application rates or farming practices at the site, a revised plan will be provided within 2 weeks of the modification.

Permittee agrees to notify landowner or landowner designee of the proposed schedule for land application and specifically prior to any particular application to landowner's land. Notice shall include the source of residuals to be applied.

See Fred Messie

Permittee - Authorized Representative
Printed Name

Signature

Mailing Address

**VIRGINIA POLLUTION ABATEMENT APPLICATION
PART D-VI LAND APPLICATION AGREEMENT**

Page 2 of 2

 Permittee: Synagro
 Landowner: FRED WILKINS

 Permit # or County: Louisa
 Farm name or address: 4724 FLEMING RD
LOUISA VA 23073
Landowner Site Management Requirements:

I, the landowner, I have received a DEQ Biosolids Fact Sheet that includes information regarding regulations governing the land application of biosolids, the components of biosolids and proper handling and land application of biosolids.

I have also been expressly advised by the Permittee that the site management requirements and site access restrictions identified below must be complied with after biosolids have been applied on my property in order to protect public health, and that I am responsible for the implementation of these practices.

I agree to implement the following site management practices at each site under my ownership following the land application of biosolids at the site:

1. Notification Signs: I will not remove any signs posted by the Permittee for the purpose of identifying my field as a biosolids land application site, unless requested by the Permittee, at least 30 days after land application at that site was completed.
2. Public Access
 - a. Public access to land with a high potential for public exposure shall be restricted for at least one year following any application of biosolids.
 - b. Public access to land with a low potential for public exposure shall be restricted for at least 30 days following any application of biosolids. No biosolids amended soil shall be excavated or removed from the site during this same period of time unless adequate provisions are made to prevent public exposure to soil, dusts or aerosols;
 - c. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.
3. Crop Restrictions:
 - a. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after the application of biosolids.
 - b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface for a time period of four (4) or more months prior to incorporation into the soil.
 - c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months when the biosolids remain on the land surface for a time period of less than four (4) months prior to incorporation.
 - d. Other food crops and fiber crops shall not be harvested for 30 days after the application of biosolids;
 - e. Feed crops shall not be harvested for 30 days after the application of biosolids (60 days if fed to lactating dairy).
4. Livestock Access Restrictions:

Following biosolids application to pasture or hayland sites:

 - a. Meat producing livestock shall not be grazed for 30 days.
 - b. Lactating dairy animals shall not be grazed for a minimum of 60 days.
 - c. Other animals shall be restricted from grazing for 30 days;
5. Supplemental commercial fertilizer or manure applications will be coordinated with the biosolids and industrial residuals applications such that the total crop needs for nutrients are not exceeded as identified in the nutrient management plan developed by a person certified in accordance with §10.1-104.2 of the Code of Virginia;
6. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of biosolids or industrial residuals borne cadmium equal to or exceeding 0.45 pounds/acre (0.5 kilograms/hectare).

Landowner's Signature

Date

**VIRGINIA POLLUTION ABATEMENT APPLICATION
FORM D: MUNICIPAL EFFLUENT AND BIOSOLIDS**

PART D-VI: LAND APPLICATION AGREEMENT - BIOSOLIDS AND INDUSTRIAL RESIDUALS

A. This biosolids/industrial residuals land application agreement is made on 6/27/12 between Susan Ann Massie ETALS referred to here as "Landowner", and Synagro referred to here as the "Permittee". This agreement remains in effect until it is terminated in writing by either party or until ownership of all parcels changes. If ownership of individual parcels identified in this agreement changes, those parcels for which ownership has changed will no longer be authorized to receive biosolids or industrial residuals under this agreement.

Landowner:

I am the registered owner of real property known as LO-07, located in _____, Virginia, which includes the agricultural sites identified below in Table 1 and identified on the tax map(s) attached as Exhibit A.

Table 1.: Parcels authorized to receive biosolids, water treatment residuals or other industrial sludges

<u>Tax Parcel ID</u>	<u>Tax Parcel ID</u>	<u>Tax Parcel ID</u>	<u>Tax Parcel ID</u>
<u>13-67</u>			
<u>25-39</u>			

☐ Additional parcels containing Land Application Sites are identified on Supplement A (check if applicable)

Check one:

☒ I am the sole owner of the properties identified herein.

☐ I am one of multiple owners of the properties identified herein.

In the event that I, the landowner, sell or transfer all or part of the property to which biosolids have been applied within 38 months of the latest date of biosolids application, I shall:

1. Notify the purchaser of the applicable public access and crop management restrictions no later than the closing date; and
2. Notify the permit holder of the sale within two weeks following closing.

I have no other agreements for land application on the fields identified herein. I will notify the permittee immediately if conditions change such that the fields are no longer available to the permittee for application or any part of this agreement becomes invalid.

I hereby grant permission to the Permittee to land apply residuals as specified below, on the agricultural sites identified above and in Exhibit A. I also grant permission for DEQ staff to conduct inspections on my land identified above, before, during or after land application of permitted residuals for the purpose of determining compliance.

☐ Class B biosolids ☐ Water treatment residuals ☐ Other industrial sludges (check all that apply)

FRED MASSIE

Landowner - Printed Name

Susan Ann Massie

Signature

4744 Ellisville Dr Louisa

Mailing Address

23073**Permittee:**

Synagro, the permittee, agrees to apply biosolids and/or industrial residuals on the landowner's land in the manner authorized by the VPA Permit Regulation and in amounts not to exceed the rates identified in the nutrient management plan prepared for each land application field by a person certified in accordance with §10.1-104.2 of the Code of Virginia. Permittee will provide a copy of the NMP to the landowner within 30 days after land application has commenced. If the plan requires modification to reflect the actual application rates or farming practices at the site, a revised plan will be provided within 2 weeks of the modification.

Permittee agrees to notify landowner or landowner designee of the proposed schedule for land application and specifically prior to any particular application to landowner's land. Notice shall include the source of residuals to be applied.

Madison HolsingerPermittee - Authorized Representative
Printed NameMadison Holsinger

Signature

10647 Tidewater Trail

Mailing Address

Champlain VA 22438

VIRGINIA POLLUTION ABATEMENT APPLICATION
PART D-VI LAND APPLICATION AGREEMENT

Page 2 of 2

Permittee: Synagro

Permit # or County: Louisiana

Landowner: Susan Ann Nassie ETALS

Farm name or address: LD-07

Landowner Site Management Requirements:

I, the landowner, I have received a DEQ Biosolids Fact Sheet that includes information regarding regulations governing the land application of biosolids, the components of biosolids and proper handling and land application of biosolids.

I have also been expressly advised by the Permittee that the site management requirements and site access restrictions identified below must be complied with after biosolids have been applied on my property in order to protect public health, and that I am responsible for the implementation of these practices.

I agree to implement the following site management practices at each site under my ownership following the land application of biosolids at the site:

1. Notification Signs: I will not remove any signs posted by the Permittee for the purpose of identifying my field as a biosolids land application site, unless requested by the Permittee, at least 30 days after land application at that site was completed.
2. Public Access
 - a. Public access to land with a high potential for public exposure shall be restricted for at least one year following any application of biosolids.
 - b. Public access to land with a low potential for public exposure shall be restricted for at least 30 days following any application of biosolids. No biosolids amended soil shall be excavated or removed from the site during this same period of time unless adequate provisions are made to prevent public exposure to soil, dusts or aerosols;
 - c. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority
3. Crop Restrictions:
 - a. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after the application of biosolids.
 - b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface for a time period of four (4) or more months prior to incorporation into the soil,
 - c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months when the biosolids remain on the land surface for a time period of less than four (4) months prior to incorporation.
 - d. Other food crops and fiber crops shall not be harvested for 30 days after the application of biosolids;
 - e. Feed crops shall not be harvested for 30 days after the application of biosolids (60 days if fed to lactating dairy).
4. Livestock Access Restrictions:

Following biosolids application to pasture or hayland sites:

 - a. Meat producing livestock shall not be grazed for 30 days;
 - b. Lactating dairy animals shall not be grazed for a minimum of 60 days;
 - c. Other animals shall be restricted from grazing for 30 days;
5. Supplemental commercial fertilizer or manure applications will be coordinated with the biosolids and industrial residuals applications such that the total crop needs for nutrients are not exceeded as identified in the nutrient management plan developed by a person certified in accordance with §10.1-104.2 of the Code of Virginia;
6. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of biosolids or industrial residuals borne cadmium equal to or exceeding 0.45 pounds/acre (0.5 kilograms/hectare).

Susan Ann Nassie
Landowner's Signature

27 Jan 2012
Date



Tax Map ID 13-67, 25-39



Scale: 1:18055.954822

Date: 05/03/2012

Printed By:

Loudoun County assumes no liability for any errors, omissions, or inaccuracies in the information provided regardless of the cause of such or for any decision made, action taken, or action not taken by the user in reliance upon any maps or data provided herein. Please consult official County plats and records for official information.



Tax Map ID 14-33, 35



Scale: 1:18055.954822

Date: 05/03/2012

Printed By:

Loudoun County assumes no liability for any errors, omissions, or inaccuracies in the information provided regardless of the cause of such or for any decision made, action taken, or action not taken by the user in reliance upon any maps or data provided herein. Please consult official County plats and records for official information.

Tax ID Landowner Identification Sheet

<u>Landowner</u>	<u>Field #</u>	<u>Tax ID</u>
MASSIE, SUSAN ANN ESTATE	07-01	13 - 67 25 - 39
MASSIE, SUSAN ANN ET ALS	07-02	25 - 39
MASSIE, SUSAN ANN ET ALS	07-03	25 - 39
MASSIE, SUSAN ANN ET ALS	07-04	25 - 39
MASSIE, SUSAN ANN ET ALS	07-05	25 - 39
MASSIE, SUSAN ANN ET ALS	07-07	25 - 39
MASSIE, SUSAN ANN ET ALS	07-08	25 - 39
MASSIE, SUSAN ANN ET ALS	07-09	25 - 39
MASSIE, SUSAN ANN ET ALS	07-11	25 - 39
MASSIE, FRED ET ALS	07-19	14 - 33, 35
MASSIE, FRED ET ALS	07-20	14 - 35
MASSIE, FRED ET ALS	07-21	14 - 35
MASSIE, FRED ET ALS	07-22	14 - 35

<u>Field #</u>	<u>Latitude (north)</u>	<u>Longitude (west)</u>
07-01	38 ⁰ 05' 04.26"	78 ⁰ 01' 28.61"
07-02	38 ⁰ 05' 14.73"	78 ⁰ 01' 22.20"
07-03	38 ⁰ 04' 55.10"	78 ⁰ 01' 15.31"
07-04	38 ⁰ 04' 47.88"	78 ⁰ 01' 03.48"
07-05	38 ⁰ 04' 39.83"	78 ⁰ 01' 20.48"
07-07	38 ⁰ 04' 52.51"	78 ⁰ 01' 33.75"
07-08	38 ⁰ 04' 46.25"	78 ⁰ 01' 35.89"
07-09	38 ⁰ 04' 34.05"	78 ⁰ 01' 26.00"
07-11	38 ⁰ 04' 38.45"	78 ⁰ 01' 35.15"
07-19	38 ⁰ 05' 41.02"	77 ⁰ 59' 48.79"
07-20	38 ⁰ 05' 24.14"	77 ⁰ 59' 36.45"
07-21	38 ⁰ 05' 15.95"	77 ⁰ 59' 36.97"
07-22	38 ⁰ 05' 15.45"	77 ⁰ 59' 54.11"

Haul Route:

The location maps in conjunction with the above latitude and longitude coordinates are a route planning tool meant to be a guide to indicate suggested haul routes for various preferences; to include but not limited to all federal, state, and local granted STAA access routes.

Field	Map Unit	Acres	Percentage	Soil Series	High Water	Flood	Environmental Sensitive
07-01	AsC	13.0	37	Ashlar			Leaching
07-01	GrB2	11.4	32				
07-01	GvC3	9.4	27				
07-01	CO	1.4	4				
07-02	GrB2	11.2	86				
07-02	GrC2	1.8	14				
07-03	CO	9.7	36				
07-03	GvC3	9.2	34				
07-03	GrC2	4.8	17				
07-03	GrB2	3.5	13				
07-04	GrB2	13.1	41				
07-04	MaB2	8.4	26				
07-04	GrC2	4.2	14				
07-04	AsC	4.1	13	Ashlar			Leaching
07-04	SP	2.0	6	Sekil			Leaching
07-05	AsC3	8.9	28	Ashlar			Leaching
07-05	GrC2	5.9	18				
07-05	GrB2	5.3	17				
07-05	CO	5.1	16				
07-05	SP	3.5	11	Sekil			Leaching
07-05	GvC3	3.1	10				
07-07	CO	6.3	46				
07-07	GrC2	5.6	40				
07-07	GrB2	2.0	14				
07-08	AsC	3.4	47	Ashlar			Leaching
07-08	CO	3.3	47				
07-08	GrB2	0.4	6				
07-09	GrC2	6.2	75				
07-09	GrB2	2.1	25				
07-10	GrC2	5.4	67				
07-10	WoB	1.3	16	Worsham	Nov - May		
07-10	CO	0.9	11				
07-10	GrB2	0.5	6				
07-11	CO	2.1	37				
07-11	WoB	2.0	35	Worsham	Nov - May		
07-11	AsB	1.1	19	Ashlar			Leaching
07-11	GrC2	0.5	9				
07-12	GrC2	10.9	81				
07-12	GrB2	2.0	15				
07-12	AsB	0.6	4	Ashlar			Leaching

Field	Map Unit	Acres	Percentage	Soil Series	High Water	Flood	Environmental Sensitive
07-13	GrC2	9.8	85	Ashlar			Leaching
07-13	GrB2	1.3	11				
07-13	AsB	0.5	4				
07-14	GrC2	4.9	55				
07-14	TaB2	3.0	34				
07-14	GrB2	0.5	6	Ashlar			Leaching
07-14	TaC2	0.4	5				
07-15	GrC2	3.5	37				
07-15	TaB2	3.4	36				
07-15	TaC2	2.6	27				
07-16	TaB2	6.2	52	Ashlar			Leaching
07-16	TaC2	4.2	35				
07-16	GrC2	1.5	13				
07-17A	TaB2	2.2	71				
07-17A	TaC2	0.9	29				
07-17B	TaB2	0.9	53	Colfax	Nov - June		Leaching
07-17B	TaC2	0.8	47				
07-19	AsC	3.2	42				
07-19	GrC2	1.7	22				
07-19	GvB3	1.4	18				
07-19	CIB	0.9	12	Ashlar			Leaching
07-19	GrB2	0.5	6				
07-20	GrB2	7.3	35				
07-20	GrC2	7.0	33				
07-20	AIB	2.6	12				
07-20	AbB	2.2	10	Ashlar			Leaching
07-20	AsC3	2.1	10				
07-21	AbB	6.8	29				
07-21	AnB2	5.1	22				
07-21	GrC2	5.2	22				
07-21	GvC3	3.7	16	Wehad - Chew Ashlar	Nov - May	Nov - June	Leaching
07-21	GrB2	2.7	11				
07-22	AsC3	8.0	35				
07-22	GrC2	5.4	23				
07-22	GvB3	4.6	20				
07-22	WH	4.2	18				
07-22	AsC	1.0	4				

Environmentally Sensitive Areas

Field	Reason for Sensitive Area
7-01	Leaching Potential (Map Unit AsC – 37%)
7-02	None
7-03	None
7-04	Leaching Potential (Map Unit AsC, SP – 19%)
7-05	Leaching Potential (Map Unit AsC3, SP – 39%)
7-07	None
7-08	Leaching Potential (Map Unit AsC – 47%)
7-09	None
7-19	High Water Table (Map Unit CIB – 12%) Leaching Potential (Map Unit AsC – 42%)
7-20	Leaching Potential (Map Unit AsC3 – 10%)
7-21	None
7-22	High Water Table (Map Unit WH – 18%) Flooded Soils (Map Unit WH – 18%) Leaching Potential (Map Units AsC, AsC3 – 39%)

Louisa County Soils that are Environmentally Sensitive

Soil Map Unit	Series Name	Time of year		Environmental
		High Water	Flooded	
AsB, AsC, AsD	Ashlar			Leaching
AsC3, AsD3	Ashlar			Leaching
AV	Ashlar			Leaching
Ch	Chewacla	Nov - April	Nov - April	
CIB	Colfax	Nov - June		
Eb	Elbert	Nov - May		
FN	Fluvaquents	Nov - April	Nov - April	
Fo	Forestdale	Jan - April	Jan - April	
FrB	Fork	Oct - May	Oct - May	
IdB	Iredell	Dec - April		
IdB2, IdC2	Iredell	Dec - April		
IrA, IrB	Iredell	Dec - April		
Iv	Iredell	Dec - April		
LgB	Lignum	Dec - May		
MnB, MnC, MnD	Madison			Shallow
MoC, MoD	Madison			Shallow
SeB, SeC, SeD	Sekil			Leaching
SeC3	Sekil			Leaching
SP	Sekil			Leaching
To	Tocca		Jan - Dec	
Ts	Tocca		Jan - Dec	
We	Wehadkee	Nov - May	Nov - June	
WH	Wehadkee-Chewacla	Nov - May	Nov - June	
WoB	Worsham	Nov - May		

MAP LEGEND



House/Dwelling with a well



Rock Outcrop



Well



Lake/Pond



Slope which exceeds 15%



Intermittent Stream



Stream/River



Agricultural/Drainage Ditch

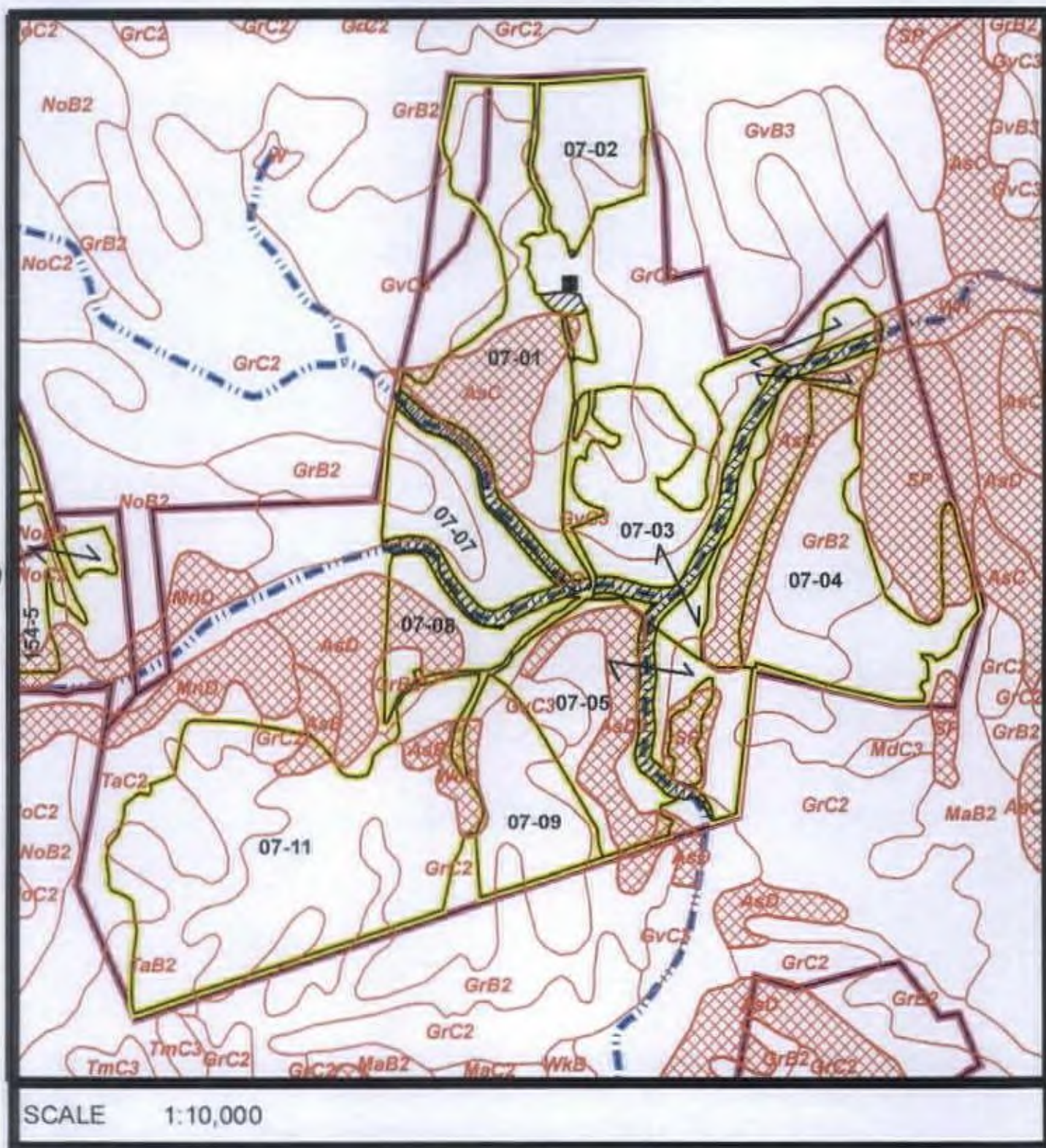


Field boundary



Property Line -- (Standard 100'
Buffer, unless waiver issued)

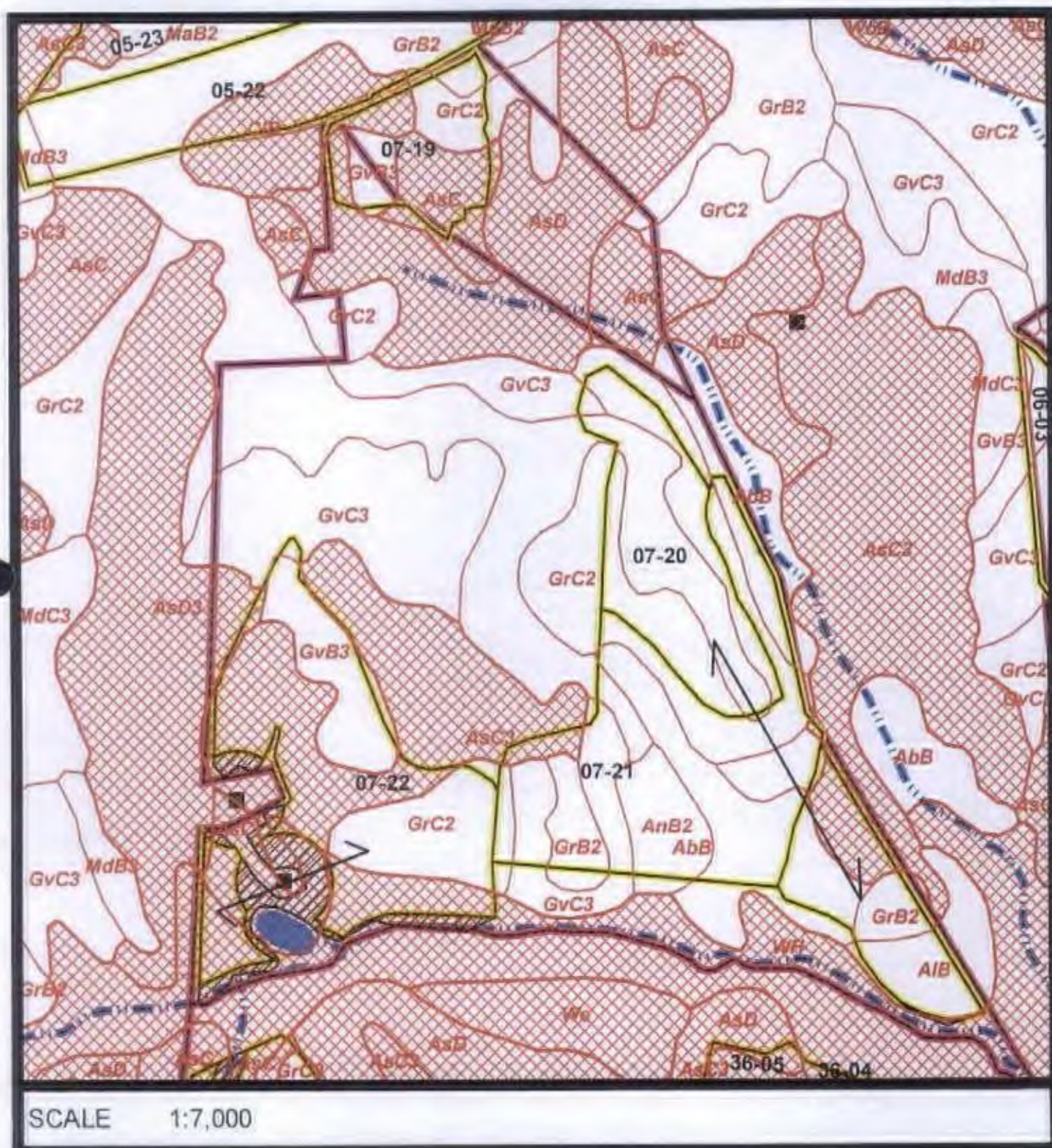
Revised: Jan 13, '14




SOIL MAP

 Environmentally Sensitive Soil





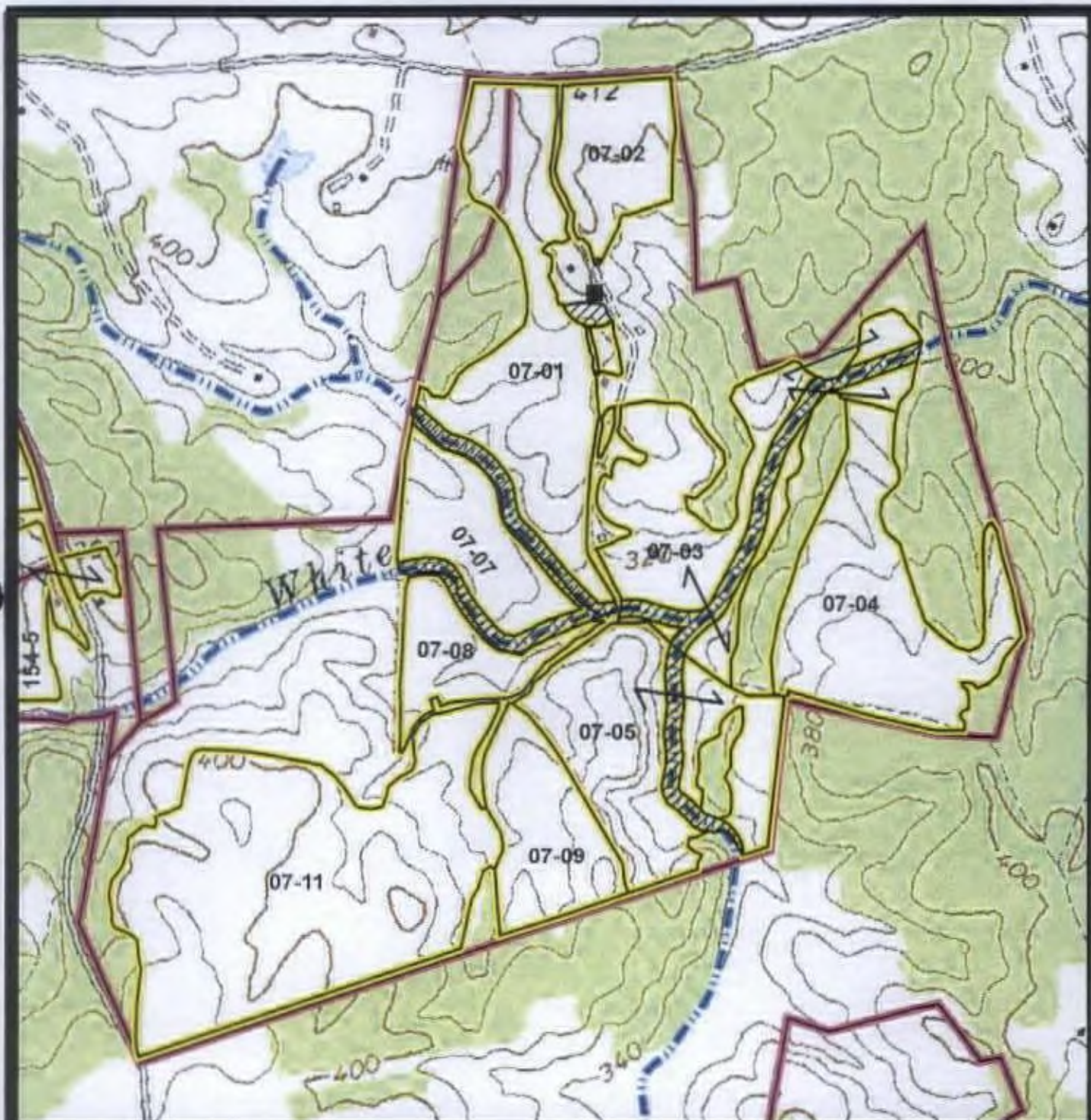
SOIL MAP

 Environmentally Sensitive Soil



SYNAGRO

Fred Massie
LO07
Fields 1 - 5, 7 - 9, 11



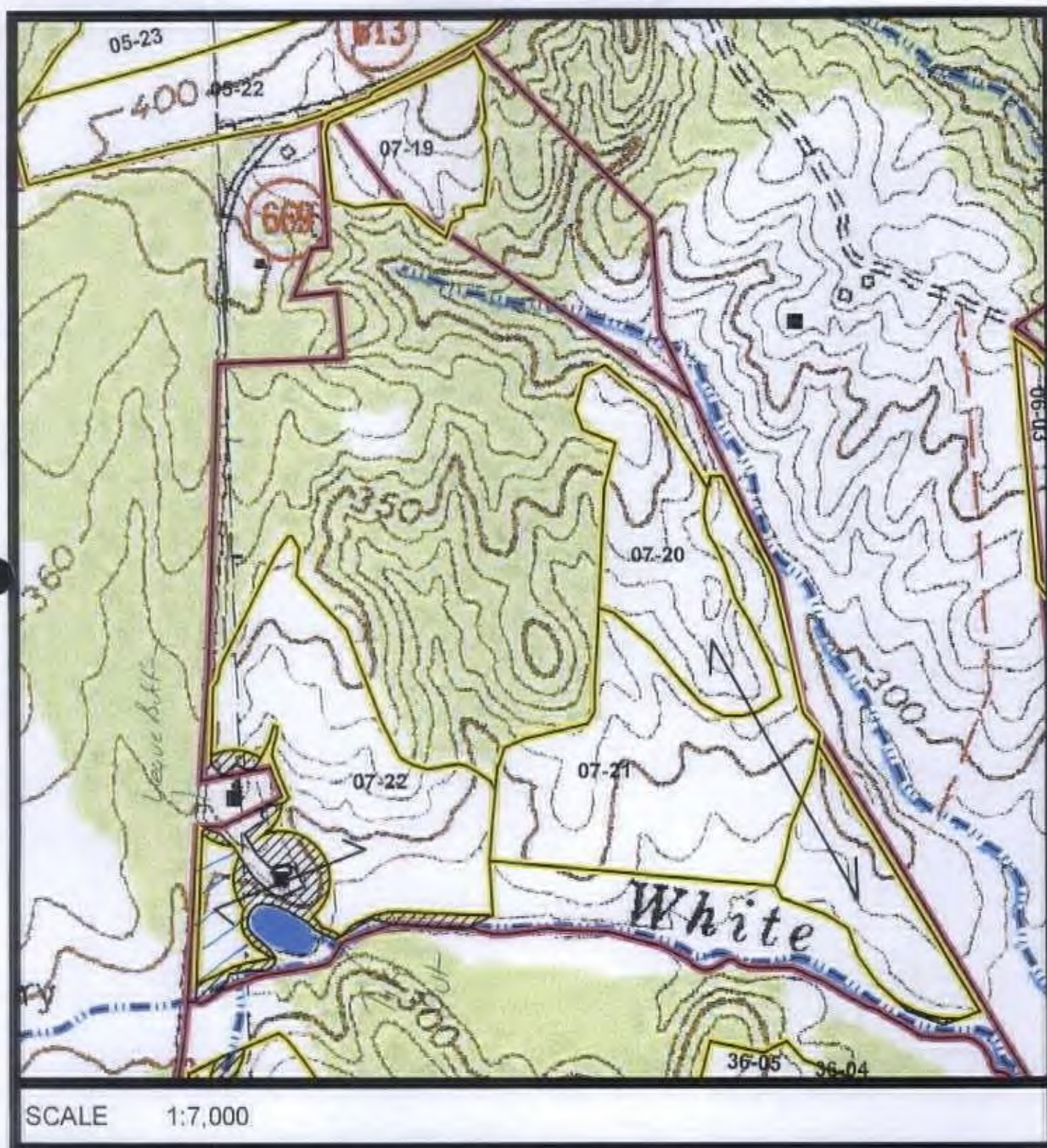
SCALE 1:10,000

TOPO MAP

↑
N
↓

SYNAGRO

Fred Massie
LO07
Fields 19 - 22



TOPO MAP

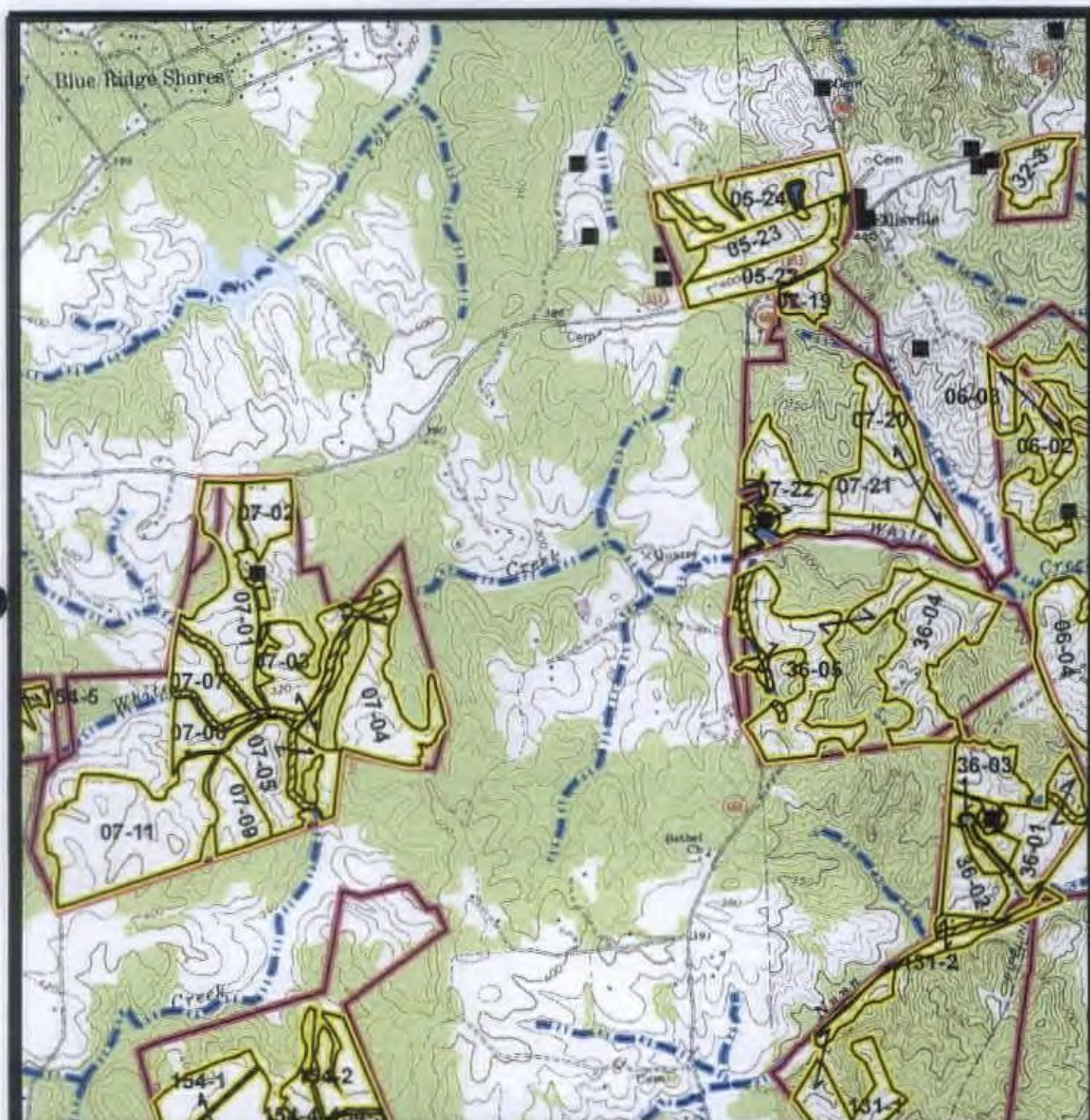
↑
N
↓

SYNAGRO®

Fred Massie

LO07

Fields 1 – 5, 7 – 9, 11, 19 – 22



SCALE 1:24,000

TOPO MAP

↑
N

